CHEESE RIPENING PROCESS MONITORED BY DIELECTRIC PARAMETERS

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ABSTRACT

Efficiency and economy of cheese manufacturing is determined by cheese ripening. Therefore, monitoring of cheese ripening and estimation of the end point of the process has high relevance and contributes to achieve high quality product. There are known several methods to characterize the physicochemical changes during ripening, such as texture profile analysis (TPA), colour measurements, soluble protein determination and sensory analysis. Dielectric measurements as fast and non-destructive method can be applied for monitoring of enzymatic processes, chemical reactions and textural modification of food, but, there are very few experiences related to application in dairy technology. Therefore, the aim of our research was to investigate the applicability of dielectric measurements for monitoring cheese ripening process. For the experiments Trappist cheese and Bácskai kneaded cheese samples were used. During the ripening period CIE LAB colour coordinates (measured by Minolta CR300), hardness and the adhesive force (TPA parameters by Brookfield CT3 analyser), and soluble nitrogen fraction were determined. Dielectric constant (□') was measured by Speag DAK 3.5 probe connected to vector network analyser (Rohde&Schwarz ZVL-3) in the frequency range of 200-2400 MHz. Our results show, that the dielectric constant has a good linear correlation with TPA parameters and colour coordinates (□' show decreasing tendency for Trappist cheese, and increasing tendency for Bácskai cheese versus time) in the first 14 days of the ripening period.

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